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Patent
Attorney Docket No. GEMS8081.056

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Gupta et al.

Serial No. : 09/747,645

Filed : December 22, 2000

For : Method and Apparatus for Measuring Product Shipment
Process Capability

Group Art No. : 3623

Examiner : Jeanty, R.

CERTIFICATION UNDER 37 CFR 1.8(a) and 1.10

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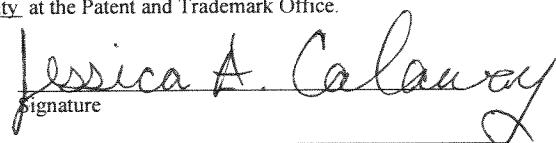
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APPEAL BRIEF PURSUANT TO 37 C.F.R. §§1.191 AND 1.192

Dear Sir:

This Appeal Brief is being filed in furtherance of the Notice of Appeal filed on October 26, 2005.

1. REAL PARTY IN INTEREST

The real party in interest is General Electric Co., the Assignee of the above-referenced Application by virtue of the Assignment to General Electric Co., recorded on April 20, 2004, at real 016212, frame 0534.

2. RELATED APPEALS AND INTERFERENCES

Appellant is unaware of any other appeals or interferences related to this Appeal. The undersigned is Appellant's legal representative in this Appeal. General Electric Co., the Assignee of the above-referenced Application, as evidenced by the documents mentioned above, will be directly affected by the Board's decision in the pending appeal.

3. STATUS OF THE CLAIMS

Claims 1–26 are currently pending. Outstanding final rejections remain with respect to claims 1-10 and 17-26 and, thus, are the subject of this appeal. Claims 11-16 have been indicated as rejected in the Advisory Action mailed October 13, 2005 and in the Notice of Panel Decision from Pre-Appeal Brief Review mailed November 23, 2005; however, in Office Action mailed August 3, 2005, it was indicated that the rejection to claims 11-16 had been overcome and, as such, there are no outstanding rejections against claims 11-16 and, thus, claims 11-16 are not a subject of this appeal.

4. STATUS OF AMENDMENTS

Appellant filed an Amendment/Response to Final Office Action Mailed August 3, 2005 on September 27, 2005. In an Advisory Action mailed October 13, 2005, it was indicated that the amendments presented on September 27, 2005 would not be entered. As such, the claims on appeal correspond to those as amended on March 18, 2005.

5. SUMMARY OF CLAIMED SUBJECT MATTER

The claimed invention is directed to a method for measuring product shipment process capability. GUPTA ET AL., US 2002/0123943A1, ¶[0008]. The method uses a database (36) that is maintained with current data and contains fields indicating an order number, a maximum ship date (44), a customer requested date (46), and a product

category for each order. *Id.* The maximum ship date (44) is the date when the last piece of an order was shipped, and the customer requested date (46) is the date when the customer requested the product to be shipped. *Id.* The method requires fetching order information (38) for all orders that have a valid maximum ship date, subtracting the customer requested date from the maximum ship date (42) thereby producing a difference value (48), adding a predetermined number of days (50) to the difference value (48) to provide a shipment quality metric for each order (54), and using the shipment quality metric (54) in a statistical calculation (58-64) to indicate process quality (64). *Id.*

A further claimed embodiment of the invention calls for a computer-readable medium that contains one or more computer programs that, when executed by one or more computers, causes the one or more computers to follow a number of instructions from the computer program. GUPTA ET AL., *supra* at ¶[0009]. The one or more programs first instruct the one or more computers (10) to query (38) a database (36) that contains information detailing orders, a requested delivery date (46), a maximum ship date (42), and a product category for a plurality of products. *Id.* Any orders with an invalid entry for the maximum ship date or absent an entry for the maximum ship date are ignored (40). *Id.* The one or more computers (10) are then instructed to subtract (48) the requested delivery date (46) from the maximum ship date (42) and add an adjustment value (50) to obtain a shipment quality metric (54). *Id.* The query (36), subtraction (48), and addition (52) acts are repeated for a plurality of shipped products until all are processed. *Id.* At this point the one or more computers (10) process (58-62) the shipment quality metrics to determine overall shipment quality. *Id.*

In another claimed embodiment, the invention is embodied in a computer data signal representing a sequence of instructions that, when executed by one of more processors (10), causes the one or more processors to accomplish a number of tasks. GUPTA ET AL., *supra* at ¶[0010]. The tasks involve a database (36) that is maintained with data indicating order numbers, promise dates, request dates, maximum ship dates, and a product category for a number of products. *Id.* The instructions then provide for obtaining the data from each order that has a valid maximum ship date (42). *Id.* That data is used to create an upper specification limit (USL) by adding a predetermined number of days just prior to a customer's requested delivery date (46), and to create a lower

specification limit (LSL) by adding a predetermined number of days after a customer's requested delivery date (46). *Id.* The data signal then causes the one or more processors (10) to compute and display a statistical value (64) providing an indication of process capability that is then relayed in the data signal to the user. *Id.*

6. GROUNDS OF REJECTION

Claims 1-10 stand rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. Claims 17-26 also stand rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter.

7. ARGUMENT

A. REJECTION OF CLAIMS 1-10 AS BEING DIRECTED TO NON-STATUTORY SUBJECT MATTER

It has been asserted that claims 1-10 are directed to non-statutory subject matter because the claimed invention does not “apply, invoice, use, or advance the technological arts” and does not produce “a useful, concrete, and tangible result.” OFFICE ACTION, August 3, 2005, pp. 2-3. The Examiner’s conclusion that claims 1-10 are not directed to statutory subject matter contradicts preexisting case law and the most recent decision of the Board of Patent Appeals and Interferences holding in *Ex Parte Lundgren*, BPAI, No. 2003-2008, September 28, 2005. As established by the BPAI in *Ex Parte Lundgren*, “there is currently no judicially recognized ‘technological arts’ test to determine patent eligible subject matter under §101.” *Ex Parte Lundgren*, *supra* at p. 7. Therefore, the test that has been applied to determine subject matter eligibility of claims 1-10 has no foundation in statute or case law. In fact, as set forth above, this Board has repudiated the very test that was applied to reject claims 1-10 as being directed to non-statutory subject matter.

In rejecting claims 1-10 under 35 U.S.C. §101 the Examiner stated that “the basis of this rejection is set forth in a two-prong test of: (1) whether the invention is within the technological arts [and] (2) whether the invention produces a useful, concrete and tangible result.” OFFICE ACTION, August 3, 2005, p. 2. As established in *Ex Parte Lundgren*, the first prong of the Examiner’s “two-prong” test has no foundation in statute

or case law and, as such, any rejection based on the conclusion that the claims are not “within the technological arts” is without merit or support. Moreover, the Examiner’s application of the “useful, concrete, and tangible result” test was also misapplied.

The “useful, concrete, and tangible result” test is applied to claims that have been deemed to fall outside one of the four statutory categories for eligible subject matter. As such, if a claimed invention is directed to a statutory category of inventions, then the only other additional requirement is that the invention has utility, as set forth at 35 U.S.C. §101. Specifically, Section 101 of Title 35 of the U.S. Code provides:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.

35 U.S.C. §101.

Accordingly, if a claimed invention is directed to a new and useful process, machine, manufacture, or composition of matter, it will fall within the enumerated statutory categories of patentable subject matter. Claims 1-10 call for “a method for measuring product shipment process capability.” In this regard, the claimed invention falls within the statutory category of “process” and provides the useful result of “measuring product shipment capability.” Accordingly, claims 1-10 are directed to statutory subject matter and thus comply with the statutory provisions of 35 U.S.C. §101.

While Appellant believes that claims 1-10 are directed to a useful process and thus compliant with section 101, nevertheless, the following remarks are directed to the Examiner’s indirect assertion that claims 1-10 are directed to one of the three exclusions to patentable subject matter (abstract ideas, laws of nature, and natural phenomena). Specifically, the Examiner has stated that “mere intended or nominal use of a component, albeit within the technological arts, does not confer statutory subject matter to an otherwise abstract idea if the component does not apply, involve, use, or advance the underlying process.” OFFICE ACTION, August 3, 2005, p. 3. While it is clear that the Examiner’s statement is predicated upon the erroneous belief that there is a separate “technological arts” test when determining whether an invention is directed to eligible subject matter, it also suggests that the Examiner concluded that claims 1-10 are directed to nothing more than an abstract idea.

Claims directed to excluded subject matter, i.e., fall outside one of the four statutory categories, may be eligible if the claim has a practical application. See *Diamond v. Diehr*, 450 U.S. 175, 187, 209 USPQ 1, 8 (1981). While Appellant believes that claims 1-10, contrary to the indirect assertion of the Examiner, are not directed to an abstract idea; nevertheless, at a minimum, the claims are directed to a practical application. That is, Appellant has not sought to patent the abstract idea of measuring product shipment process capability. Appellant has sought to patent such a process as defined by the specific steps set forth in claims 1-10. Thus, Appellant has not sought to patent every “substantial practical application” of the idea of measuring product shipment process capability. Appellant has sought to patent the practical application of measuring product shipment process capability that includes “maintaining a database..., fetching order information..., subtracting the customer requested date..., adding a predetermined number of days...; and determining a statistical calculation to indicate process quality using the shipment quality metric,” as called for in claim 1. In other words, as set forth in the language of claims 1-10, Appellant has not claimed the exclusive right to “measuring product shipment process capability,” but rather, to a possible method thereof as set forth in the claimed steps.

Further, assuming that claims 1-10 include a mathematical algorithm, the algorithm is applied, by a machine through a series of calculations, to derive a statistical calculation indicative of product shipment process capability, and therefore, constitutes a practical application of the algorithm without foreclosing other uses of the mathematical principle used in deriving the statistical value. Thus, not only does the claimed invention fall within one of the four statutory categories, but is directed to a practical application of a process.

Contrary to the assertions of the Examiner, the claimed invention, in addition to being within the enumerated classes of statutory subject matter, also provides a “useful, concrete, and tangible result” as required for patentability of subject matter that falls outside one of the statutory categories. (Appellant contends, as set forth above, that claims 1-10 are, in fact, directed to an invention of one of the four statutory categories, therefore, the remarks hereat are for the purpose to establish, assuming *arguendo* that the claims are directed to an excluded invention, that the claimed invention provides a

“useful, concrete, and tangible result” that recaptures the statutory eligibility of the claimed subject matter.)

For an invention to be useful it must have “utility”. *MPEP §2107*. In other words, the claimed invention must be specific, substantial, and credible. *Id.* As set forth above and provided in claim 1, the utility of the claimed method is in “measuring product shipment process capability...[by] determining a statistical calculation to indicate process quality using the shipment quality metric.” As set forth in the Application, the claimed invention provides an effective tool for “automatically assessing the process quality capability of a shipping process.” GUPTA ET AL., *supra* at Abstract. As such, it is clear that the claimed invention yields a useful result.

Further, the result of the invention is also tangible. That is, for an invention to satisfy the tangibility requirement, the claim must set forth a practical application to produce a real-world result. *Gottschalk v. Benson*, 409 U.S. 63, 71-72, 175 USPQ 673, 676-77 (1972). As set forth above, the claimed invention provides the real-world result of a “statistical calculation to indicate process quality using the shipment quality metric” that is determined by “adding a predetermined number of days to the difference value providing [the] shipment quality metric for each order” of “a database that contains fields indicating at least an order, a max ship date, a customer requested date, and a product category for each order,” as called for in claim 1. In short, the claimed invention clearly provides a tangible result.

Moreover, the claimed invention provides a concrete result. For a claimed process to provide a concrete result, “the process must have a result that can be substantially repeatable or the process must substantially produce the same result again.” *In re Swartz*, 232 F.3d 862, 864, 56 USPQ2d 1703, 1704 (Fed. Cir. 2000). In *Swartz*, the Federal Circuit established that a claimed invention having an “irreproducible” result should be rejected under 35 U.S.C. §101. There is nothing in the record to suggest that the claimed process is “irreproducible”. Moreover, the Application clearly sets forth in the Detailed Description the particulars of the invention such that one skilled in the art could make and/or use the claimed invention without undue experimentation. As such, claims 1-10 are believed to be directed to an invention that provides a concrete result.

In sum, the invention called for in claims 1-10 defines a process as a method therefore falls within one of the statutory subject matter categories set forth in section 101. Moreover, assuming that the claimed invention falls outside the enumerated categories, the eligibility of the claimed invention is recaptured as the claimed invention is directed to a practical application. In other words, the claimed invention provides a “useful, tangible, and concrete result.” Accordingly, the rejection of claims 1-10 as being directed to non-statutory subject matter is without merit and must be withdrawn.

**B. REJECTION OF CLAIMS 17-26 AS BEING DIRECTED TO
NON-STATUTORY SUBJECT MATTER**

In rejecting claims 17-26 the Examiner applied the repudiated two prong test of “technological arts” and “useful, tangible, and concrete result.” OFFICE ACTION, August 3, 2005, p. 3. Specifically, the Examiner stated that “for a process claim to pass muster, the recited process must somehow apply, involve, use, or advance the technological arts.” *Id.* As established in *Ex Parte Lundgren*, this Board repudiated the “technological arts” test applied by the Examiner. Accordingly, the Examiner’s application of such a test and the conclusions reached therefrom must be ignored.

Therefore, as set forth in the above Argument, the first inquiry of the recognized test for patent eligibility is whether the claimed invention falls within one of the enumerated statutory categories of “process, machine, manufacture, or composition of matter”.

Appellant acknowledges that a “computer data signal” is not specifically identified as one of the four statutory categories of eligible subject matter for patenting; however, Appellant believes that the elements called for in claims 17-26 include functional descriptive material that is structurally and functionally interrelated to the computer data signal which result in the claimed invention being appropriately categorized as a “process” under 35 U.S.C. §101.

Specifically, the computer data signal defines a sequence of instructions that causes one or more processors to carry out a series of acts. In this regard, the “structure” of the computer data signal is defined by the functionally descriptive acts carried out by the one or more processors. Accordingly, because the claim calls for various acts to be

performed, the claim is akin to a process claim. As such, claims 17-26 are believed to be directed to a statutorily eligible invention.

Nevertheless, assuming that the claimed invention falls outside the enumerated categories, Appellant believes that the invention provides a practical application and, as such, is directed to statutory subject matter. Specifically, the computer data signal defined in claim 17, as representing a sequence of instructions for one or more processors, causes the one or more processors to ultimately “compute and display a statistical value providing an indication of process capability.” Appellant agrees that the underlying mathematical computations involved in deriving such a statistical value may be used to determine other statistical values and, as such, Appellant has not sought to preempt use of the underlying computations. Claims 17-26 are directed to the practical application of those mathematical computations to measure and display a value indicative of product shipment process capability. Accordingly, while the invention may be predicated on the mathematical realities of being able to calculate statistical values from various inputs, the invention extends those mathematical realities to the real-world example of measuring product shipment process capability without foreclosing use of those same mathematical realities for other statistical applications. Additionally, the one or more processors is caused to “display the statistical value” which is external to any underlying mathematical process used to compute the statistical value. In this regard, the invention called for in claims 17-26 is not directed to an abstract idea and, at a minimum, provides a “useful, tangible, and concrete result” as required for eligibility of judicially excluded inventions.

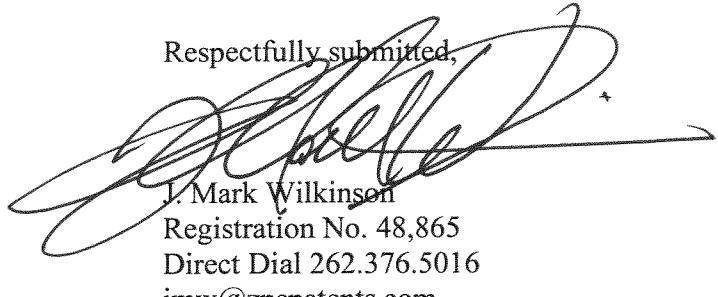
CONCLUSION

In view of the above remarks, Appellant respectfully submits that the Examiner has provided no supportable position that claims 1-10 and 17-26 are not patentable. Appellant believes that each claim is directed to statutory subject matter and defines over the art of record.

General Authorization for Extension of Time

In accordance with 37 C.F.R. §1.136, Appellant hereby provides a general authorization to treat this and any future reply requiring an extension of time as incorporating a request therefore. The Office is authorized to charge Deposit Account No. 07-0845 for any fee deficiency.

Respectfully submitted,



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Dated: 12/5/05
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CLAIMS APPENDIX

1. (Original) A method for measuring product shipment process capability, comprising:

maintaining a database that contains fields indicating at least an order, a max ship date, a customer requested date, and a product category for each order;

fetching order information for all orders that have a valid max ship date;

subtracting the customer requested date from the max ship date producing a difference value;

adding a predetermined number of days to the difference value providing a shipment quality metric for each order; and

determining a statistical calculation to indicate process quality using the shipment quality metric.

2. (Original) The method of claim 1 wherein the order information fetched from the database is only for those orders that were placed within a given time period.

3. (Previously Presented) The method of claim 1 further comprising:

determining a value for an upper specification limit and a lower specification limit;

displaying a percentage of times the shipment quality metric was greater than the upper specification limit; and

displaying a percentage of times the shipment quality metric was less than the lower specification limit.

4. (Original) The method of claim 1 further comprising:

setting a value for at least one specification limit; and

computing and displaying a statistical score based upon the specification limit and the shipment quality metrics, wherein said statistical score is a measure of process capability.

5. (Original) The method of claim 1 wherein the steps following maintaining the database are repeated at regular time intervals.

6. (Original) The method of claim 1 wherein the statistical calculation is calculated and displayed for each product category.

7. (Original) The method of claim 4 wherein the statistical score is calculated by using a formula given by:

$$Z_{LT} = \min\left[\frac{USL - \mu}{\sigma}, \frac{\mu - LSL}{\sigma}\right].$$

8. (Original) The method of claim 7 wherein the method further comprises determining Z short-term by use of the formula $Z_{ST} = Z_{LT} + 1.5$.

9. (Original) The method of claim 7 wherein the method further comprises displaying said Z_{LT} value by displaying a scale representing a range of values for Z_{LT} with an overlapping needle to indicate current performance.

10. (Original) The method of claim 8 wherein the method further comprises graphically displaying the Z_{ST} value by displaying a range of values with an overlapping needle to indicate current performance.

11. (Original) A computer-readable medium having stored thereon one or more computer programs having a set of instructions that, when executed by one or more computers, causes the one or more computers to:

query a database that contains information detailing orders, a requested delivery date, a max ship date, and a product category for a plurality of products;

ignore orders with no max ship date;

subtract the requested delivery date from the max ship date and add an adjustment value to obtain a shipment quality metric;

repeat the query, subtraction, addition acts for a plurality of shipped products; and

process the shipment quality metrics to determine overall shipment quality.

12. (Original) The computer-readable medium of claim 11 wherein the shipment quality metrics are processed to provide a statistical measure of process capability.

13. (Original) The computer-readable medium of claim 11 wherein the shipment quality metrics are regularly re-processed by repeating the acts of claim 11 at regular time intervals.

14. (Original) The computer-readable medium as in claim 13 wherein the regular time interval is substantially real-time as perceived by a user.

15. (Original) The computer-readable medium of claim 11 wherein processing the shipment quality metrics is accomplished by a set of instructions that, when executed by one or more computers, causes the one or more computers to further:

determine a mean of the shipment quality metrics;

determine a standard deviation of the shipment quality metrics;

designate an upper specification limit (USL) and a lower specification limit (LSL) for the shipment quality metrics;

determine a Z long-term value by subtracting the mean from the upper specification limit and dividing the result by the standard deviation; and

display the value of Z long-term.

16. (Original) The computer-readable medium of claim 15 having further instructions to determine an estimated value for Z Short Term by adding a constant to the Z long-term value.

17. (Original) A computer data signal representing a sequence of instructions that, when executed by one or more processors, cause the one or more processors to:

maintain a database of data indicating an order number, a promise date, a request date, a max ship date, and a product category for each product;

obtain the data from each order that has a valid max ship date;

create an upper specification limit by adding a predetermined number of days just prior to a customer's requested delivery date;

create a lower specification limit by adding a predetermined number of days after a customer's requested delivery date; and

compute and display a statistical value providing an indication of process capability.

18. (Original) The computer data signal of claim 17 wherein the computer data signal contains further instructions to repeat the instructions of claim 17 at regular time intervals.

19. (Original) The computer data signal of claim 17 wherein the information is updated and the statistical value is recalculated every time a user requests the information.

20. (Original) The computer data signal of claim 17 having instructions to:

determine a mean value and a standard deviation;

subtract the mean value from the upper specification limit and divide a result by the standard deviation to create a first Z-value;

subtract the lower specification limit from the mean value and divide a result by the standard deviation to create a second Z-value; and

choose a value that is a minimum of the first and second Z-values.

21. (Original) The computer data signal of claim 17 wherein the statistical value calculated and displayed is a projected defect in parts per million.

22. (Original) The computer data signal of claim 17 wherein the statistical value calculated and displayed is a Z long-term value.

23. (Original) The computer data signal of claim 17 wherein the statistical value calculated and displayed is a Z short-term value.

24. (Original) The computer data signal of claim 17 having instructions to:
determine a number of times that an actual shipment date was between the upper specification limit and the lower specification limit given a number of opportunities;
project what the number of opportunities would be given one million opportunities; and
display the projected number as defects per one million opportunities.

25. (Original) The computer data signal of claim 20 wherein the instructions cause the one or more processors to further:
decide which of the first and second Z-values are a minimum value; and
display the minimum value first and second Z-values identified as Z long-term.

26. (Original) The computer data signal of claim 25 wherein the instructions cause the one or more processors to further:
add 1.5 to the minimum value and display it as Z short-term.

EVIDENCE APPENDIX

--None.

RELATED PROCEEDINGS APPENDIX

--None.